Selected Abstracts from the November Issue of the European Journal of Vascular and Endovascular Surgery

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Status Update and Interim Results from the Asymptomatic Carotid Surgery Trial-2 (ACST-2)

ACST-2 Collaborative Group. Eur J Vasc Endovasc Surg 2013;46:510-8.

Objectives: ACST-2 is currently the largest trial ever conducted to compare carotid artery stenting (CAS) with carotid endarterectomy (CEA) in patients with severe asymptomatic carotid stenosis requiring revascularization.

Methods: Patients are entered into ACST-2 when revascularization is felt to be clearly indicated, when CEA and CAS are both possible, but where there is substantial uncertainty as to which is most appropriate. Trial surgeons and interventionalists are expected to use their usual techniques and CE-approved devices. We report baseline characteristics and blinded combined interim results for 30-day mortality and major morbidity for 986 patients in the ongoing trial up to September 2012.

Results: A total of 986 patients (687 men, 299 women), mean age 68.7 years (SD ± 8.1) were randomized equally to CEA or CAS. Most (96%) had ipsilateral stenosis of 70-99% (median 80%) with contralateral stenoses of 50-99% in 30% and contralateral occlusion in 8%. Patients were on appropriate medical treatment. For 691 patients undergoing intervention with at least 1-month follow-up and Rankin scoring at 6 months for any stroke, the overall serious cardiovascular event rate of periprocedural (within 30 days) disabling stroke, fatal myocardial infarction, and death at 30 days was 1.0%.

Conclusions: Early ACST-2 results suggest contemporary carotid intervention for asymptomatic stenosis has a low risk of serious morbidity and mortality, on par with other recent trials. The trial continues to recruit, to monitor periprocedural events and all types of stroke, aiming to randomize up to 5000 patients to determine any differential outcomes between interventions.

Procedural Risk Following Carotid Endarterectomy in the Hyperacute Period after Onset of Symptoms

Sharpe R., Sayers R.D., London N.J.M., Bown M.J., McCarthy M.J., Nasim A., Davies R.S.M., Naylor A.R. Eur J Vasc Endovasc Surg 2013;46:519-24.

Objectives: There have been concerns that performing carotid endarterectomy (CEA) in the hyperacute period after onset of a transient ischaemic attack (TIA) or stroke may be associated with a significant increase in the procedural risk that could offset any long-term benefit to the patient. The aim of this audit was to determine the 30-day risk of stroke/death after CEA in symptomatic patients, stratified for delay from the most recent neurological event, mode of presentation, and age.

Methods: Retrospective audit in 475 recently symptomatic patients between October 1, 2008, and April 24, 2013.

Results: Forty-one patients (9%) underwent surgery <48 hours of their most recent event, with a 30-day death/stroke rate of 2.4% (1/41). The procedural risk was 1.8% in 167 patients who underwent surgery within 3-7 days (3/167), falling to 0.8% in 133 patients who underwent surgery between 8 and 14 days (1/133) and 0.8% in 134 patients whose surgery took place after >14 days had elapsed (1/134). Overall, 208 (44%) underwent surgery within 7 days of their most recent neurological event (30-day risk = 1.9%), while 341 (72%) underwent CEA within 14 days (30 day risk = 1.5%). There was no evidence of any systematic differences in procedural risk by operating in the hyperacute period relating to mode of presentation (TIA, stroke, amaurosis) or age (<80 years; >80 years).

Conclusions: This audit found no evidence that the procedural risk was increased when CEA was performed in the hyperacute period whether this time period was defined as <48 hours, <7 days, or <14 days.

Calcification as a Risk Factor for Rupture of Abdominal Aortic Aneurysm

Buijs R.V.C., Willems T.P., Tio R.A., Boersma H.H., Tielliu I.F.J., Slart R.H.J.A., Zeebregts C.J. Eur J Vasc Endovasc Surg 2013;46:542-8.

Objectives: Abdominal aortic aneurysm (AAA) is a major cause of death in developed countries. The AAA diameter is still the only validated prognostic measure for rupture, and therapeutic interventions are initiated accordingly. This still leads to unnecessary interventions in some cases or unidentified impending ruptures. Vascular calcification has been validated abundantly as a risk factor in the cardiovascular field and may strengthen the rupture risk assessment of the AAA. With this study we aim to assess the correlation between AAA calcification and rupture risk in a retrospective unmatched case-control population.

Methods: A database of 334 AAA patients was evaluated. Three groups were formed: elective (eAAA; $n = 233$), ruptured (rAAA; $n = 73$) and symptomatic non-ruptured (sAAA; $n = 28$) AAA patients. The Abdominal Aortic Calcification-8 score (AAC-8) was used to measure the severity of vascular calcification.

Results: The AAA diameter (61 ± 12 mm vs 74 ± 21 mm; $P < .001$) and AAC-8 score (3.4 ± 2 points vs 4.9 ± 2.3 points; $P < .001$) of the eAAA and the combined rAAA and sAAA groups, respectively, were significantly different after univariate analysis. Multivariate analysis showed that larger AAA diameter (odds ratio [OR]: 1.048/mm increase; 95% confidence interval [CI]: 1.042-1.082; $P < .001$) and a higher AAC-8 score (OR: 1.34/point increase; 95% CI: 1.19-1.53; $P < .001$) were significantly associated with development into a sAAA or rAAA. Peripheral artery disease was significantly correlated to eventual elective treatment (OR: 0.39; 95% CI: .15-1; $P = .049$).

Conclusion: This study suggests a trend of an increased degree of calcification in symptomatic or even ruptured AAA patients compared with elective AAA patients.

Localized Argyria Caused by Metallic Silver Aortic Grafts: A Unique Adverse Effect

Berger P., Ricco J.B., Liqui Lung P., Moll F.L. Eur J Vasc Endovasc Surg 2013;46:565-8.

Introduction: Silver-coated grafts are designed to prevent vascular graft infections. Silver is a safe element but toxic effects have been reported. We describe two cases of possible localized argyria after silver graft implantation.

Report: Two patients presented with perigraft groin collections after implantation of silver grafts. During reoperation, an ashen-grey necrotic substance was seen surrounding the grafts. The grafts were explanted and lower limb perfusion restored. Cultures were negative and both patients had uneventful recoveries.

Discussion: Our cases are highly suggestive of a possible unique adverse effect: a combination of localized silver toxicity and neutrophilic mediated tissue destruction.

Duplex-guided Percutaneous Transluminal Angioplasty in Iliac Arterial Occlusive Disease

Krasznai A.G., Sigterman T.A., Welten R.J., Heijboer R., Sikkink C.J.J.M., van de Akker L.H.J.M., Bouwman L.H. Eur J Vasc Endovasc Surg 2013;46:583-7.

Background: Chronic renal insufficiency (CRI) is a growing global problem. PTA can be performed without nephrotoxic contrast, utilizing Doppler-ultrasound (Duplex) guidance.

Duplex-guided infra-inguinal interventions and access-related interventions have been reported. Duplex-guided iliac interventions have not been performed to any extent because of the anatomic location. In our study we evaluated the safety and efficacy of Duplex-guided percutaneous transluminal angioplasty (DuPTA) in iliac arteries.

Methods: From June 2012 until February 2013, 31 patients (35 iliac lesions), underwent DuPTA. Indications ranged from Rutherford 3 to 5. Preoperative evaluation included Ankle Brachial Index (ABI), Duplex and MRA. Procedural success was defined as crossing the lesion with a guidewire and dilating or stenting the lesion. Clinical success was defined as 50% reduction in peak systolic velocity (PSV) or clinical improvement. PSV was evaluated after PTA, then at 2 weeks. Clinical results were assessed 2 weeks after the procedure.

Results: Procedural success was achieved in 94% of patients (33/35), all of whom also had clinical success. Post-procedural PSV reduction showed an average improvement of 63% (431 cm/s to 153 cm/s). Mean preoperative ABI was 0.72 and improved to 0.88 postoperatively.